Amendments to the Specification: [1]

Please add the following new paragraph [Para 16.1] after paragraph [Para 16]:

Figure 8 schematically represents a grain of a TBC having a modulated columnar grain structure in accordance with another embodiment of this invention.

Please replace paragraph [Para 20] with the following amended paragraph:

In Figure 2, the TBC 32 generally has three regions: an inner region 36, an outermost surface region 38, and an interior region 40 therebetween. The inner region 36 of each column 34 can be seen to be oriented substantially perpendicular to the surface of the substrate 30. The surface regions 38 of the columns 34 are not aligned with their respective inner regions 36, which as used herein means the axes of the columns 34 within their inner and surface

[1] All references to pages and paragraphs in Applicant's electronically-filed application are those inserted by the USPTO authoring software.

regions 36 and 38 are not coaxial or parallel. Furthermore, the columns 34 within the interior region 40 are not linear, but instead the axes of the columns 34 follow substantially parallel paths that are periodically diverted in one direction and then another (e.g., opposite) direction. The TBC 42 represented in Figure 3 is also indicated as generally having an inner region 46, an outermost surface region 48, and an interior region 50. As with the TBC 32 of Figure 2, the inner region 46 of each column 44 is substantially perpendicular to the surface of the substrate 30, and thereafter the axes of the columns 44 follow substantially parallel paths that are periodically diverted in one direction and then another (e.g., opposite) direction. In contrast to Figure 2, the axes of the columns 44 within the surface and interior regions 48 and 50 are substantially coaxial or at least parallel (and therefore aligned) with their respective inner regions 46, except for localized <u>curved</u> regions 52 <u>between adjacent linear portions 54 and 56</u> within the interior region 50 in which excursions of the columns 44 periodically and briefly occur. In each of Figures 2 and 3, the organized, coherent and coinciding changes in directions of the column axes along the

lengths of the columns 34 and 44 create what is termed herein a modulated microstructure.

Please replace paragraph [Para 30] with the following amended paragraph:

Constant rotation with oscillation to increase waviness of the TBC:

a. Initiate coating process by depositing for about 120 seconds while the component is substantially horizontal and is rotated at a substantially constant 14 rpm.

b. Oscillate (pitch) the component down to about forty degrees from horizontal over an extended interval of about 30 seconds while maintaining 14 rpm constant rotation.

c.. Hold the component in the forty-degree down orientation for about 100 seconds while maintaining 14 rpm constant rotation.

d. Return the component to horizontal over an extended interval of about 30 seconds while maintaining 14 rpm constant rotation.

e. Hold the component at the horizontal orientation for about 100 seconds while maintaining 14 rpm constant rotation.

f. Oscillate (pitch) the component up to about forty degrees from horizontal over an extended interval of about 30 seconds while maintaining 14 rpm constant rotation.

g. Hold the component in the forty-degree up orientation for about 100 seconds while maintaining 14 rpm constant rotation.

h. Return the component to horizontal over an extended interval of about 30 seconds while maintaining 14 rpm constant rotation.

I. Hold the component at the horizontal orientation for about 100 seconds while maintaining 14 rpm constant rotation.

j. Repeat steps b-I.

A grain column 144 produced by this process is represented in Figure 8, with reference numbers identifying features of the column 144 corresponding to features shown in Figure 3, but with a numerical prefix (1) added to distinguish this embodiment from the embodiment of Figure 3.